ABSTRACT

This invention comprises methods for manufacture, and the manufacture of heap pipes and window materials having particle structures for use in heat transfer applications in which enhanced radiative heat transfer is desired. Particle structures can be made using chemical, lithographic or other methods, and can be made into a variety of structures having predefined physical sizes. Particle structures can be made of different sizes or shapes to accommodate design requirements. Particle structures used in heat pipes can have a particles of different sizes incorporated into the same structure, and the inter-particle distances can be selected to provide broad band heat absorptive and emissive properties. Alternatively, particle structures can be designed and manufactured to provide narrow band absorptive and/or emissive properties. Additional applications include window materials. Application of particle structures to window materials can improve the heat absorptive properties, and can be useful for controlling radiative heat transmission and/or absorption by the window material.

EL 670727882 US